Facility Name: **United States Sugar Savannah Refinery, LLC**
City: Port Wentworth
County: Chatham
AIRS #: 04-13-051-00110

Application #: TV-588793 & SIP Application No. 28634
Date Application Received: September 20, 2021 and December 1, 2022
Permit No: 2062-051-0110-V-05-0

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Introduction

This narrative is being provided to assist the reader in understanding the content of referenced operating permit. Complex issues and unusual items are explained here in simpler terms and/or greater detail than is sometimes possible in the actual permit. The permit is being issued pursuant to: (1) Georgia Air Quality Act, O.C.G.A § 12-9-1, et seq. and (2) Georgia Rules for Air Quality Control, Chapter 391-3-1, and (3) Title V of the Clean Air Act. Section 391-3-1-.03(10) of the Georgia Rules for Air Quality Control incorporates requirements of Part 70 of Title 40 of the Code of Federal Regulations promulgated pursuant to the Federal Clean Air Act. The narrative is intended as an adjunct for the reviewer and to provide information only. It has no legal standing. Any revisions made to the permit in response to comments received during the public participation and EPA review process will be described in an addendum to this narrative.

I. Facility Description

A. Facility Identification

1. Facility Name: Imperial-Savannah, L.P.

2. Parent/Holding Company Name

United States Sugar

3. Previous and/or Other Name(s)

The original Title V permit for this facility was issued to the Savannah Sugar Refinery, for which Savannah Foods and Industries, Inc. was the parent/holding company. Imperial Savannah, L.P. till November 30, 2022.

4. Facility Location

201 Oxnard Drive
Port Wentworth, Georgia 31407

5. Attainment, Non-attainment Area Location, or Contributing Area

The facility is not located within a non-attainment area or a contributing area. The facility is located within 100 km of the Wolf Island Class I area.

B. Site Determination

There are no other facilities which could possibly be contiguous or adjacent and under common control.

C. Existing Permits

Table 1 below lists all current Title V permits, all amendments, 502(b)(10) changes, and off-permit changes, issued to the facility, based on a comparative review of form A.6, Current Permits, of the Title V application and the "Permit" file(s) on the facility found in the Air Branch office.

Table 1: List of Current Permits, Amendments, and Off-Permit Changes

Permit Number and/or Off-Permit Change	Date of Issuance/ Effectiveness	Purpose of Issuance
2062-051-0110-V-04-0	March 22, 2017	Title V Renewal
Off-permit change	December 18, 2020	installation and operation of a 3000 gallon diesel tank

D. Process Description

1. SIC Codes(s): 2062 – sugar refinery

2. Description of Product(s):

   Facility manufactures pure white crystal and powdered sugar, but also makes brown sugar, molasses and corn syrup as by-products.

3. Overall Facility Process Description

   Raw sugar is transformed into granulated sugar, brown sugar and other consumer and food industry productions. Bulk raw sugar arrives at the refinery on ships or in railroad boxcars.

   Affination
   The raw sugar is mixed with warm affination syrup (a solution of water and sugar) to loosen the molasses surrounding the raw sugar crystals. This produces a batter-like mixture called magma.

   Purification
   Large centrifuges spin the magma and separate the molasses film from the crystals. The crystals are washed, dissolved clarified or filtered to remove the molasses and insoluble impurities. At this point, the product is a clear golden-colored liquid. Carbon filters remove the remaining color, producing a water-white sugar syrup.

   Sugar House
   The syrup is concentrated by evaporating some of the water. This concentrated syrup is fed into a vacuum pan where it is seeded with fine sugar crystals. Through evaporation of the remaining water, these fine crystals are grown in the rich solution of sugar to produce perfect sugar crystals of the proper size. The sugar is spun in a centrifuge where the remaining syrup is spun off and the sugar crystals are washed with fresh, hot water.

   Sugar Drying and Storage
   From the centrifuge the damp crystals are conveyed to large dryers where the moisture content of the sugar crystals is reduced from approximately 1% to 0.03%. The dried granulated sugar passes over screens to separate the various sizes of sugar crystals. Large and small crystals are packaged for standard consumer use and according to the specifications of industrial customers.

4. Overall Process Flow Diagram

   The facility provided a process flow diagram in their Title V permit application.

E. Regulatory Status

1. PSD/NSR

   Portions of the refinery were originally constructed prior to the implementation of the PSD regulations. Upon promulgation of the initial PSD regulation, Imperial-Savannah, L.P. ("Imperial") was classified an existing major stationary source with potential emissions of SO_2 and NOx in excess of 250 tons during any twelve consecutive months. At that time, Imperial was not classified as one of the 28 named source categories.

The addition of the D Boiler (U161) in 1983 made the total facility-wide fossil fuel fired heat input greater than 250 MMBtu/hr. Thus, making the facility one of the 28 named source categories. The major source PSD threshold for the facility became 100 tpy of a regulated NSR pollutant. The facility added the D Boiler (U161) through PSD permitting in 1983. The operating scenario for the facility's boilers was modified in 1990 and this modification went through PSD as well. The facility is a major PSD source for PM, PM_{10}, $PM_{2.5}$, NOx, SO_2, and CO emissions.

2. Title V Major Source Status by Pollutant

Table 2: Title V Major Source Status

Pollutant	Is the Pollutant Emitted?	If emitted, what is the facility's Title V status for the pollutant?		
		Major Source Status	Major Source Requesting SM Status	Non-Major Source Status
PM	✓	✓ (197 tpy)		
PM_{10}	✓	✓ (192 tpy)		
$PM_{2.5}$	✓	✓ (252.2 tpy)		
SO_2	✓	✓ (1,442 tpy)		
VOC	✓			✓ (45 tpy)
NO_x	✓	✓ (820 tpy)		
CO	✓	✓ (147 tpy)		
Individual HAP	✓			✓ HCl Hg
Total HAPs	✓			✓

3. MACT Standards

The A, B, C, and D Boilers (U158, U159, U160, and U161, respectively) are subject to 40 CFR 63 Subpart JJJJJJ-National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers **Area Sources** ("BGACT") aka Boiler GACT.

4. Program Applicability (AIRS Program Codes)

Program Code	Applicable (y/n)
Program Code 6 - PSD	Yes
Program Code 8 – Part 61 NESHAP	No
Program Code 9 - NSPS	Yes

Program Code M – Part 63 NESHAP	Yes
Program Code V – Title V	Yes

Regulatory Analysis

II. Facility Wide Requirements

A. Emission and Operating Caps:

The facility retains its synthetic minor status for individual and total hazardous air pollutants (HAPs) with the existing 10/25 tpy emission limit carried over to this Title V Permit.

B. Applicable Rules and Regulations

Not applicable.

C. Compliance Status

A review of the Air Protection Branch compliance files shows the facility to be in compliance with their existing Title V permit.

D. Permit Conditions

Condition 2.1.1 is the facility wide SM permit limits for individual and total HAPs.

Condition 2.2.1 and 2.2.2 regarding the applicability of the General Provisions (Subpart A) to the NSPS and NESHAP Subpart have been moved to Section 6 of the permit in the renewal permit.

III. Regulated Equipment Requirements

A. Equipment List for the Process

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
U158	A Boiler	40 CFR 63 Subpart JJJJJJ PSD Avoidance for SO_2 391-3-1-.02(2)(b) 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None
U159	B Boiler	40 CFR 63 Subpart JJJJJJ PSD Avoidance for SO_2 391-3-1-.02(2)(b) 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None
U160	C Boiler	40 CFR 63 Subpart JJJJJJ PSD Avoidance for SO_2 391-3-1-.02(2)(b) 391-3-1-.02(2)(d) 391-3-1-.02(2)(g)	None	None

Emission Units		Applicable Requirements/Standards	Air Pollution Control Devices	
ID No.	Description		ID No.	Description
U161	D Boiler	40 CFR 60 Subpart D 40 CFR 63 Subpart JJJJJJ 40 CFR 52.21 PSD Avoidance for SO_2 391-3-1-.02(2)(d) 391-3-1-.02(2)(g) 40 CFR 64	C160B	Baghouse
U162	Granulated Activated Carbon (GAC) Multiple Hearth Furnace (MHF)	40 CFR 52.21 391-3-1-.02(2)(b) 391-3-1-.02(2)(e) 391-3-1-.02(2)(g)	None	None
U163	E Boiler	40 CFR Subpart Dc 391-3-1-.02(2)(g) 391-3-1-.02(2)(d)	None	None

B. Equipment & Rule Applicability

Rules and Regulations Assessment:

Regulatory Discussion for Title V Renewal Permit

Carbon Regeneration Kilns: The Permittee uses both activated carbon and animal bone char in their sugar refinery process. Each of these materials must be periodically regenerated through the application of heat. Kiln U162 operates as a GAC Multiple Hearth Furnace which regenerates used char to be used in char filter. The char filter is used to remove impurities from sugar solution. The GAC Multiple Hearth Furnace (U162) is equipped with a 0.14 MMBtu/hr. natural gas burner.

The A, B, C, D, and E Boilers (U158, U159, U160, U161, and U163, respectively)

The following table provides important background information required to properly permit these boilers.

Boiler	Heat Input Rating (MMBtu/hr.)	Date of Mfg.	Fuels Burned	Boiler GACT Subcategory
U158 (A Boiler)	141	1947	Natural gas and distillate fuel oil	Existing Oil-fired Boiler
U159 (B Boiler)	72	1944	Natural gas and distillate fuel oil	Existing Oil-fired Boiler
U160 (C Boiler)	128	1934	Natural gas and distillate fuel oil	Existing Oil-fired Boiler
U161 (D Boiler)	338	1982	Natural gas, distillate fuel oil, and coal	Existing Coal-fired Boiler
U163 (E Boiler)	25	2007	Natural gas	Existing Natural Gas-fired Boiler

The following tables specify the applicable state and federal emission limits and work practice standards.

Boiler ID No. Heat Input Rating	Pollutant	Emission Limit	
		State	Federal
U158 A Boiler 141 MMBtu/hr. Natural gas Distillate Fuel Oil	PM	0.41 lb./MMBtu per 391-1-3-1.02(2)(d)1.(ii)	No emission limit.
	Opacity	40% per 391-3-1-.02(2)(b)	No emission limit.
	NOx	No emission limit.	No emission limit.
	SO_2	Fuel sulfur content limited to less than 3.0 weight percent per 391-3-1-.02(2)(g)2. <u>PSD Avoidance:</u> Shall only burn natural gas and distillate fuel oil. Maximum distillate fuel oil sulfur content is limited to 0.5 weight percent. *The Permittee shall be prohibited from firing distillate fuel oil in more than one of the three boilers designated as Source Codes A, B, and C when the boiler designated as Source Code D is being fired on either distillate oil or coal. This prohibition shall not apply to periods of startup, shutdown, and malfunction as defined by the Rules for Air Quality Control, Chapter 391-3-1.*	No emission limit.
	CO	No emission limit	No emission limit
A Boiler (U158) Boiler GACT Requirements	<u>40 CFR 63.11201(a) – Table 1 Requirement:</u> No emission standard applies. <u>40 CFR 63.11201(b) – Table 2 Requirement:</u> <u>Option No. 4:</u> Conduct an initial tune-up of the boiler as specified in 40 CFR 63.11214. Imperial has satisfied this requirement. <u>Option No. 4:</u> Conduct a tune-up of the boiler biennially as specified in 40 CFR 63.11223. (ongoing periodic requirement)		

Boiler ID No. Heat Input Rating	Pollutant	Emission Limit	
		State	Federal
	Option No. 16: Make a one-time energy assessment as specified in this option. Imperial has satisfied this requirement.		

Boiler ID No. Heat Input Rating	Pollutant	Emission Limit	
		State	Federal
U159 B Boiler 72 MMBtu/hr. Natural Gas Distillate Fuel Oil	PM	0.46 lb./MMBtu per 391-1-3-1.02(2)(d)1.(ii)	No emission limit.
	Opacity	40% per 391-3-1-.02(2)(b)	No emission limit.
	NOx	No emission limit.	No emission limit.
	SO_2	Fuel sulfur content limited to less than 2.5 weight percent per 391-3-1-.02(2)(g)2. PSD Avoidance: Shall only burn natural gas and distillate fuel oil. Maximum distillate fuel oil sulfur content is limited to 0.5 weight percent. *The Permittee shall be prohibited from firing distillate fuel oil in more than one of the three boilers designated as Source Codes A, B, and C when the boiler designated as Source Code D is being fired on either distillate fuel oil or coal. This prohibition shall not apply to periods of startup, shutdown, and malfunction as defined by the Rules for Air Quality Control, Chapter 391-3-1.*	No emission limit.
	CO	No emission limit.	No emission limit.
B Boiler (U159) Boiler GACT Requirements	40 CFR 63.11201(a) – Table 1 Requirement: No emission standard applies. 40 CFR 63.11201(b) – Table 2 Requirement: Option No. 4: Conduct an initial tune-up of the boiler as specified in 40 CFR 63.11214. Imperial has satisfied this requirement.		

Boiler ID No. Heat Input Rating	Pollutant	Emission Limit	
		State	Federal
	Option No. 4: Conduct a tune-up of the boiler biennially as specified in 40 CFR 63.11223. Option No. 16: Make a one-time energy assessment as specified in this option. Imperial has satisfied this requirement.		

Boiler ID No. Heat Input Rating	Pollutant	Emission Limit	
		State	Federal
U160 C Boiler 128 MMBtu/hr. Natural Gas Distillate Fuel Oil	PM	0.41 lb./MMBtu per 391-1-3-1.02(2)(d)1.(ii)	No emission limit.
	Opacity	40% per 391-3-1-.02(2)(b)	No emission limit.
	NOx	No emission limit.	No emission limit.
	SO_2	Fuel sulfur content limited to less than 3.0 weight percent per 391-3-1-.02(2)(g). PSD Avoidance: Shall only burn natural gas and distillate fuel oil. Max. distillate fuel oil sulfur content is limited to 0.5 weight percent. *The Permittee shall be prohibited from firing distillate fuel oil in more than one of the three boilers designated as Source Codes A, B, and C when the boiler designated as Source Code D is being fired on either distillate fuel oil or coal. This prohibition shall not apply to periods of startup, shutdown, and malfunction as defined by the Rules for Air Quality Control, Chapter 391-3-1*	No emission limit.
	CO	No emission limit.	No emission limit.
C Boiler (U160) Boiler GACT Requirements	40 CFR 63.11201(a) – Table 1 Requirement: No emission standard applies. 40 CFR 63.11201(b) – Table 2 Requirement:		

Boiler ID No. Heat Input Rating	Pollutant	Emission Limit	
		State	Federal
	Option No. 4: Conduct an initial tune-up of the boiler as specified in 40 CFR 63.11214. Imperial has satisfied this requirement. Option No. 4: Conduct a tune-up of the boiler biennially as specified in 40 CFR 63.11223. Option No. 16: Make a one-time energy assessment as specified in this option. Imperial has satisfied this requirement.		

Boiler ID No. Heat Input Rating	Pollutant	Emission Limit	
		State	Federal[1]
U161 D Boiler[1] 338 MMBtu/hr. Natural Gas Distillate Fuel Oil Coal	PM	0.27 lb./MMBtu per 391-3-1-.02(2)(d)2.(ii)	0.10 lb./MMBtu per 40 CFR 60.42(a)(1) and 40 CFR 52.21(j)
	Opacity	20% per 391-3-1-.02(2)(d)3.	20% per 40 CFR 60.42(a)(2) and 40 CFR 52.21(j)
	NOx	391-3-1-.02(2)(d)4. 0.7 lb./MMBtu when firing coal 0.3 lb./MMBtu when firing oil 0.2 lb./MMBtu when firing gas *For simultaneous firing:* NOx (lb./MMBtu) = ((x(0.20) + y(0.30) +z(0.70))/(x+y+z) Where x = % of total heat input derived from gaseous fuel y = % of total heat input derived from oil z = % total of heat input derived from coal	40 CFR 60.44(a) and 40 CFR 52.21(j) 0.7 lb./MMBtu when firing coal 0.3 lb./MMBtu when firing oil 0.2 lb./MMBtu when firing gas *For simultaneous firing:* NOx (lb./MMBtu) = ((x(0.20) + y(0.30) +z(0.70))/(x+y+z) Where x = % of total heat input derived from gaseous fuel y = % of total heat input derived from oil z = % total of heat input derived from coal (except lignite)
	SO_2	Fuel sulfur limited to no more than 3.0 weight percent per 391-3-1-.02(2)(g) 391-3-1-.02(2)(g)1.	 40 CFR 60.43 and 40 CFR 52.21(j)

[1] The legal citation of 40 CFR 52.21 is added because the D Boiler (U161) was originally permitted with PSD BACT emission limits identical to those imposed by NSPS D.

Boiler ID No. Heat Input Rating	Pollutant	Emission Limit	
		State	**Federal[1]**
		1.2 lb./MMBtu when firing solid fossil fuel 0.80 lb./MMBtu when firing liquid fossil fuel *For simultaneous firing:* SO_2 (lb./MMBtu) = (y(0.80) +z(1.20))/(yuzu) Where y = % of total heat input derived from liquid fossil fuel z = % total of heat input derived from solid fossil fuel <u>PSD Avoidance:</u> Shall only burn natural gas, distillate fuel oil, and coal. Maximum distillate fuel oil sulfur content is limited to 0.5 weight percent.	1.2 lb./MMBtu when firing solid fossil fuel 0.80 lb./MMBtu when firing liquid fossil fuel *For simultaneous firing:* SO_2 (lb./MMBtu) = (y(0.80) +z(1.20))/(y+z) Where y = % of total heat input derived from liquid fossil fuel z = % total of heat input derived from solid fossil fuel
	CO	No emission limit.	No emission limit.
D Boiler Boiler GACT Requirements	<u>40 CFR 63.11201(a): Table 1 requirements:</u> Hg emission limit of 2.2E-05 lb./MMBtu heat input. CO emission limit of 420 ppmvd, corrected to 3% oxygen. <u>40 CFR 63.11201(b): Table 2 – Work Practice Standards</u> <u>Option No. 1:</u> Minimize the boiler's startup and shutdown periods and conduct startups and shutdowns according to the manufacturer's recommended procedures. If manufacturer's recommended procedures are not available, you must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. <u>Option No. 16.</u> Must have a one-time energy assessment performed by a qualified energy assessor. Imperial has satisfied this requirement. <u>40 CFR 63.11201(d):</u> These standards apply at all times the affected boiler is operating, except during periods of startup and shutdown as defined in 63.11237, during which time you must comply only with Table 2 to this subpart.		

Boiler ID No. Heat Input Rating	Pollutant	Emission Limit	
		State	Federal
U163 E Boiler 25 MMBtu/hr. Natural gas	PM	0.31 lb./MMBtu per 391-1-3-1.02(2)(d)2.(i)	No emission limit because unit is limited to firing natural gas.
	Opacity	20% per 391-3-1-.02(2)(d)3.	No opacity limit because unit is limited to firing natural gas.
	NOx	No emission limit.	No emission limit because unit is limited to firing natural gas.
	SO_2	Fuel sulfur content limited to less than 2.5 weight percent per 391-3-1-.02(2)(g)2. <u>PSD Avoidance:</u> Shall only burn natural gas.	No emission limit because unit is limited to firing natural gas.
	CO	No emission limit	No emission limit
E Boiler (U163) Boiler GACT Requirements	No requirements apply in this case because the boiler is limited to firing natural gas.		

C. Permit Conditions

The renewal permit has the same conditions as the current permit.

Condition 3.2.1 clarifies references to fuel oil as pertaining to distillate fuel oil. It also lists the fuels that can be fired in the various boilers. Conditions 3.2.1, 3.2.3 and 3.2.3 in the current permit are included in renewal Condition 3.2.1.b.

Current Condition 3.2.4 is included in Condition 3.2.1.c. in the renewal permit.

Current Condition 3.2.5 is incorporated in Condition 3.2.1.a in the renewal permit that also includes the GAC Multiple Hearth Furnace (U162).

Current Condition 3.2.6 is Condition 3.2.2 in the renewal permit.

Condition 3.2.3 in the renewal permit allows firing of fuel oil in only one of three boilers A, B and C when fuel oil or coal is fired in Boiler D except during periods of Startup, Shutdown and Malfunction. This is Condition 3.2.7 in the current permit.

Condition 3.3.1 subjects the D boiler to NSPS Subpart D and the area source Boiler MACT/GACT NESHAP 40 CFR 63 Subpart JJJJJJ.

Condition 3.3.2 requires compliance with all applicable requirement of the 40 CFR 63 Subpart JJJJJJ to the A, B, and C Boilers.

In Condition 3.3.3.a. requires compliance with all applicable requirements of NSPS Subpart D limit for the D Boiler when firing on natural gas, NOx. The wording "No later than March 21, 2014" was dropped since that date has passed and is not relevant anymore.

Condition 3.3.3.b is the NSPS Subpart D NOx emission limit for the D Boiler when co-firing liquid fossil fuel.

Condition 3.3.3.c is the NSPS Subpart D NOx emission limit for the D Boiler when firing coal.

Condition 3.3.3.d. is the NSPS Subpart D NOx emission limit for the D Boiler when co-firing fossil fuels.

Condition 3.3.3.e is the NSPS Subpart D opacity limit for the D Boiler when co-firing fossil fuels.

Condition 3.3.3.f is the NSPS Subpart D PM emission limit for the D Boiler when co-firing fossil fuels.

Condition 3.3.3.g is the NSPS Subpart D SO_2 emission limit for the D Boiler when firing liquid fossil fuels.

Condition 3.3.3.h is the NSPS Subpart D SO_2 emission limit for the D Boiler when firing coal.

Condition 3.3.3.i is the NSPS Subpart D SO_2 emission limit for the D Boiler when co-firing fuels.

Conditions 3.3.3.j and 3.3.3.k Includes the CO and Hg emission limits imposed by 40 CFR 63 Subpart JJJJJJ.

Condition 3.3.4.a is the General Requirement per 40 CFR 63.11205(a).

Condition 3.3.4.b includes all of 40 CFR 63.11205(b) requirement.

Condition 3.3.4.c. Establishes the requirement of 40 CFR 63.11205(c).

Condition 3.3.5 is the applicable work practice standard for the D Boiler and reflects Option No. 2 to 40 CFR 63 Subpart JJJJJJ and 40 CFR 63.11201(b).

Condition 3.3.6 is the requirement regarding the operating limit for the D Boiler regarding Hg fuel analysis.

Condition 3.3.7 is the requirement regarding the operating limit for the D Boiler regarding performance stack testing.

Condition 3.3.9 adds 40 CFR 60 Subpart A as an applicable requirement for the E Boiler.

Condition 3.3.8 states that Boiler E is subject to all applicable requirements of NSPS Subparts A and Dc.

Condition 3.4.1 establishes PM emission limit for the A, B, and C Boilers per Georgia Rule (d).

Condition 3.4.2 is the Georgia Rule (d) Establishes opacity limit for the A, B, and C Boilers per Georgia Rule (b).

Conditions 3.4.3, 3.4.4 and 3.4.5 groups equipment by fuel sulfur content limit established by Georgia Rule (g).

Condition 3.4.6 establishes the PM emission limit for the E Boiler per Georgia Rule (d).

Condition 3.4.7 establishes the opacity limit for the E Boiler per Georgia Rule (d).

Condition 3.4.8 is the PM emission limit for GAC Multiple Hearth Furnace (source U162) per Georgia Rule (e).

IV. Testing Requirements (with Associated Record Keeping and Reporting)

A. General Testing Requirements

The permit includes a requirement that the Permittee conduct performance testing on any specified emission unit when directed by the Division. Additionally, a written notification of any performance test(s) is required 30 days (or sixty (60) days for tests required by 40 CFR Part 63) prior to the date of the test(s) and a test plan is required to be submitted with the test notification. Test methods and procedures for determining compliance with applicable emission limitations are listed and test results are required to be submitted to the Division within 60 days of completion of the testing.

B. Specific Testing Requirements

1. Individual Equipment:

40 CFR 60 Subpart D – Standards of Performance for Fossil-Fuel-Fired Steam Generators: The D Boiler (U158) is subject to this NSPS for NOx, SO_2, opacity, and PM emissions. Imperial has satisfied the initial performance testing requirements of 40 CFR 60.8 back in the early 1980's for the D Boiler (U158). NSPS D imposes no additional testing requirements.

40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units: The E Boiler (U163) is subject to this regulation. NSPS Dc imposes no testing requirements, in this case, because E Boiler (U163) only fires natural gas.

40 CFR 63 Subpart JJJJJJ – NESHAP for Industrial, Commercial, and Institutional Boilers Area Sources: The A, B, and C Boilers (U158, U159, and U160, respectively) are classified as *existing oil-fired boilers*. The Boiler GACT imposes no testing requirements for this subcategory.

The E Boiler (U163) is exempt from the BGACT because the boiler is only capable of firing natural gas.

The D Boiler (U161):

Initial Compliance Demonstration – Stack Testing: The following table provides the results of Imperials' initial compliance testing on the D Boiler (U161) conducted in February 2014. The initial compliance testing is required by 40 CFR 63.11210, 40 CFR 63.1212 and Table 4 of Subpart JJJJJJ of 40 CFR 63.

Pollutant	Allowable	Tested Values	Note(s)
CO	420 ppm @ 3% oxygen	34.0 ppm @ 3% oxygen	3-hour average
Hg	2.20E-05 lb./MMBtu	5.56E-07 lb./MMBtu	3-hour average

Initial Compliance Demonstration – Mercury Fuel Input: Another component of demonstrating initial compliance is to conduct a fuel analysis for each type of fuel burned per 40 CFR 63.1213 and Table 5 of Subpart JJJJJJ of 40 CFR 63 per 40 CFR 63.11213(a). Imperial conducted a fuel analysis on the coal burned in the D Boiler (U161) for mercury in September 2012 which resulted in an initial value of 3.2E-06 lb./MMBtu. This is well below the allowable limit of 2.20E-05 lb./MMBtu.

Initial Compliance Demonstration – Establish Operating Limits: Another component of demonstrating initial compliance is to establish, in this case, a unit-specific limit for minimum oxygen level using data from the oxygen analyzer system specified in 40 CFR 63.11224(a), per Option No. 3 in Table 6 of Subpart JJJJJJ of 40 CFR 63. Their initial oxygen concentration test was conducted on February 5-6, 2014. The average oxygen concentration was determined to be 5.5%.

Continuous Compliance Demonstration – Stack Testing (40 CFR 63.1220(a)): Imperial must conduct all applicable performance testing according to 40 CFR 63.11212 on a triennial basis. Triennial performance tests must be completed no more than 37 months after the previous performance test.

Imperial has chosen to show continuous compliance with the mercury limit using fuel analyses rather than subsequent stack testing.

Condition 4.2.1 maintains the requirement to conduct triennial performance tests on the D Boiler as applicable under the Boiler GACT.

Condition 4.2.2: The facility-wide SM status for HCl is based in part on testing for determination of an HCl reduction factor from coal combusted in the D Boiler.

Monitoring Requirements

A. General Monitoring Requirements

Condition 5.1.1 requires that all continuous monitoring systems required by the Division be operated continuously except during monitoring system breakdowns and repairs. Monitoring system response during quality assurance activities is required to be measured and recorded. Maintenance or repair is required to be conducted in an expeditious manner.

B. Specific Monitoring Requirements

1. Individual Equipment:

The A Boiler (U158) is subject to an emission standard for PM per Georgia Rule 391-3-1-.02(2)(d); an opacity standard per Georgia Rule 391-3-1-.02(2)(b); and a fuel sulfur content per Georgia Rule 391-3-1-.02(2)(g) and PSD Avoidance. The A Boiler (U158) is permitted to burn natural gas and distillate fuel oil. The A Boiler (U158) burns "clean fuels" and should easily comply with the PM and opacity standards. The Permittee is required to retain fuel sulfur certifications from the distillate fuel oil supplier which specifies the sulfur content of the distillate fuel oil to provide a reasonable assurance of compliance with the PSD Avoidance requirement for fuel oil sulfur content.

The A Boiler (U158) is subject to a work practice standard under 40 CFR 63 Subpart JJJJJJ (Option No. 4 in Table 2). The work practice consists of the Permittee conducting a tune-up of the A Boiler (U158) on a biennial basis. The components of the required boiler tune-up are specified in 40 CFR 63.11223(b). Each biennial tune-up must be conducted no more than 25 months after the previous tune-up.

The B Boiler (U159) is subject to an emission standard for PM per Georgia Rule 391-3-1-.02(2)(d); an opacity standard per Georgia Rule 391-3-1-.02(2)(b); and a fuel sulfur content per Georgia Rule 391-3-1-.02(2)(g) and PSD Avoidance. The B Boiler (U159) is permitted to burn natural gas and distillate fuel oil. The B Boiler (U159) burns "clean fuels" and should easily comply with the PM and opacity standards. The Permittee is required to retain fuel sulfur certifications from the distillate fuel oil supplier which specifies the sulfur content of the distillate fuel oil to provide a reasonable assurance of compliance with the PSD Avoidance requirement for fuel oil sulfur content.

The B Boiler (U159) is subject to a work practice standard under 40 CFR 63 Subpart JJJJJJ (Option No. 4 in Table 2). The work practice consists of the Permittee conducting a tune-up of the B Boiler (U159) on a biennial basis. The components of the required boiler tune-up are specified in 40 CFR 63.11223(b). Each biennial tune-up must be conducted no more than 25 months after the previous tune-up.

The C Boiler (U160) is subject to an emission standard for PM per Georgia Rule 391-3-1-.02(2)(d); an opacity standard per Georgia Rule 391-3-1-.02(2)(b); and a fuel sulfur content per Georgia Rule 391-3-1-.02(2)(g) and PSD Avoidance.

The C Boiler (U160) is permitted to burn natural gas and distillate fuel oil. The boiler burns "clean fuels" and should easily comply with the PM and opacity standards. The Permittee is required to retain fuel sulfur certifications from the distillate fuel oil supplier which specifies the sulfur content of the distillate fuel oil to provide a reasonable assurance of compliance with the PSD Avoidance requirement for fuel oil sulfur content.

The C Boiler (U160) is subject to a work practice standard under 40 CFR 63 Subpart JJJJJJ (Option No. 4 in Table 2). The work practice consists of the Permittee conducting a tune-up of the C Boiler (U160) on a biennial basis. The components of the required boiler tune-up are specified in 40 CFR 63.11223(b). Each biennial tune-up must be conducted no more than 25 months after the previous tune-up.

The D Boiler (U161) is subject to emission standards for opacity, NOx, PM (filterable), and SO_2 per 40 CFR 60 Subpart D; emission standards for opacity, NOx, PM (filterable), and SO_2 per 40 CFR 52.21; emission standards for opacity, PM, and NOx per Georgia Rule 391-3-1-.02(2)(d); and an emission standard for SO_2 and fuel sulfur content per Georgia Rule 391-3-1-.02(2)(g); and a fuel sulfur limit per PSD Avoidance. The D Boiler (U161) is permitted to combust natural gas, distillate fuel oil, and coal.

The monitoring requirements are specified in the following table.

Pollutant	**Monitoring**	**Legal Citation for Monitoring**
NOx	Emissions: CEMS Emissions: CMS[2]	40 CFR 60.45(a) 40 CFR 60.45(g)(3)(i) 391-3-1-.02(6)(a)2.(xii)(I)
SO_2	Emissions: CEMS Emissions: CMS[2] Fuel Sulfur Content-Supplier Certifications	40 CFR 60.45(a) and 40 CFR 60.45(g)(2)(i) 391-1-.02(6)(a)2.(i)(II) PSD Avoidance 391-3-1-.02(2)(g)3.
Opacity	COMS CMS[2]	40 CFR 60.45(a) 40 CFR 60.45(g)(2)(i).
PM	CMS[2] for opacity	391-3-1-.02(6)(a)2.(i)(I)

The D Boiler (U161) is also subject to 40 CFR 63 Subpart JJJJJJ for CO and mercury emissions. The BGACT monitoring requirements for the D Boiler (U161) are specified in the following table:

[2] CMS = Continuous monitoring system

Pollutant	BGACT Monitoring Requirements	Legal Citation for Monitoring
CO	Install, calibrate, operate and maintain an oxygen analyzer system, as defined in 40 CFR 63.11237, according to the manufacturer's recommendation. Develop and maintain a site-specific monitoring plan for the oxygen analyzer system.	40 CFR 63.11224(a) 40 CFR 63.11224(d) 40 CFR 63.11224(c) 40 CFR 63.11205(c)
Hg	Fuel analysis of coal conducted according to 40 CFR 63.11213 as specified in 40 CFR 63.11220(d)(1) and 40 CFR 63.11220(e). <u>Frequency of fuel analysis:</u> Next sampling must be conducted by September 14, 2017 since the mercury constituents in the coal were measured to be less than or equal to half of the mercury emission limit based on the initial fuel analysis in 2014. If the 2017 fuel analysis results show that the mercury constituents in the fuel or fuel mixture are equal to or less than half of the mercury emission limit, the Permittee may choose to conduct fuel analysis sampling for mercury every 12 months. If the 2017 fuel analysis results show that the mercury constituents in the fuel or fuel mixture are greater than half of the mercury emission limit, the Permittee must conduct quarterly sampling.	40 CFR 63.11220(d)

The E Boiler (U163) is subject to a PM and opacity standard per Georgia Rule 391-3-1-.02(2)(d); and a restriction to burn only natural gas for purposes of complying with NSPS Dc. The E Boiler (U163) burns a "clean fuel" and should easily comply with the PM emission rate and opacity standard. Therefore no monitoring is prescribed for purposes of these state rules.

NSPS Dc requirements are discussed in Section VI of this narrative.

2. <u>Equipment Groups (all subject to the same monitoring requirements):</u>

None applicable.

C. <u>Compliance Assurance Monitoring (CAM):</u> CAM requirements are applicable to the D Boiler (U161) for particulate matter which is controlled via a baghouse. PM emissions are regulated under Georgia Rule 391-3-1-.02(2)(d) and 40 CFR 60.42. The Division and Imperial established the operation of a COMS as CAM Indicator No. 1 and baghouse inspection as Indicator No. 2.

Imperial operates the COMS per NSPS Subpart D. No revision to the existing CAM requirements is necessary in the renewal permit.

Section 5.2 Conditions

Conditions 5.2.1 requires continuous monitoring of Opacity, sulfur dioxide, nitrogen oxides, and either oxygen or carbon dioxide from emissions unit D Boiler. include the requirements of 391-3-1-.02(6)(a)2. NSPS Subpart D monitoring requirements for the D Boiler are split up for clarity.

Conditions 5.2.2.a and 5.2.2.b clarifies the monitoring requirements (fuel type and usage amounts) for the A Boiler (U158) as they relate to the facility-wide SM limit on HAP emissions.

Conditions 5.2.2.c and 5.2.2.d pertain to the monitoring requirements (fuel type and usage amounts) for the B Boiler (U159) as they relate to the facility-wide SM limit on HAP emissions.

Conditions 5.2.2.e and 5.2.2.f pertain to the monitoring requirements (fuel type and usage amounts) for the C Boiler (U160) as they relate to the facility-wide SM limit on HAP emissions.

Conditions 5.2.2.g through 5.2.2.j pertain to the monitoring requirements (fuel type and usage amounts) for the D Boiler (U161) as they relate to the following:

- Facility-wide SM limit on HAP emissions.
- NSPS D requirements.
  BGACT requirements per 40 CFR 63.11222(a)(2) and 40 CFR 63.11225(b).

Condition 5.2.2.k pertain to the monitoring requirements (fuel type and usage amounts) for the E Boiler (U163) as they relate to the facility-wide SM limit on HAP emissions.

Condition 5.2.3.a contains the basis for the D Boiler to be equipped with a continuous oxygen analyzer per 40 CFR 63.11222(a)(1) and 40 CFR 63.11224(a).

Condition 5.2.3.b. lists the Requirement per 40 CFR 63.11224(c).

Condition 5.2.3.c contains the Requirement per 40 CFR 63.11224(d).

Condition 5.2.4 allows the Permittee to use a fuel analysis to verify continuous compliance with the mercury emission limit.

Condition 5.2.5.a through c. contains the requirements of 40 CFR 63.11221(b),(c) and (d).

Conditions 5.2.6.a through e. contain the Tune-up requirements for the A, B, C, and D Boilers per 40 CFR 63.11223(a) and 40 CFR 63.11223(b).

Condition 5.2.6.f includes the applicable requirement of 40 CFR 63.11223(a) and 40 CFR 63.11223(b)(7).

Condition 5.2.7 states that Boiler D is subject to CAM for PM.

Condition 5.2.8 is CAM Requirement for the D Boiler and its baghouse and the indicator parameters are identified as stack opacity and baghouse inspection.

Condition 5.2.9 requires the Permittee to prepare and maintain a Preventative Maintenance Program (PMP) for the D Boiler baghouse.

VI. Record Keeping and Reporting Requirements

A. General Record Keeping and Reporting Requirements

The Permit contains general requirements for the maintenance of all records for a period of five years following the date of entry and requires the prompt reporting of all information related to deviations from the applicable requirements. Records, including identification of any excess emissions, exceedances, or excursions from the applicable monitoring triggers, the cause of such occurrence, and the corrective action taken, are required to be kept by the Permittee and reporting is required on a semiannual basis.

B. Specific Record Keeping and Reporting Requirements

Imperial operates a CEMS and a COMS to comply with NSPS D.

Emission Unit	Note(s)
D Boiler (U161)	<u>Opacity Standard per 40 CFR 60.45(g)(1)</u> Excess emissions are defined as any six-minute period during which the average opacity of emissions exceeds 20 percent opacity, except that one six-minute average per hour of up to 27 percent opacity need not be reported. <u>Opacity Standard per Georgia Rule 391-3-1-.02(2)(d)2.(iii)</u> Excess emissions are defined as any six-minute period during which the average opacity of emissions exceeds 20 percent opacity, except that one six-minute average per hour of up to 27 percent opacity need not be reported. <u>SO_2 Standard per 40 CFR 60.45(g)(2)(i)</u> Excess emissions are defined as any three-hour period during which the average emissions (arithmetic average of three contiguous one-hour periods) of SO_2 as measured by a CEMS exceed the applicable standard in 40 CFR 60.43. <u>SO_2 Standard per Georgia Rule 391-3-1-.02(2)(g)1., 2., and 3.</u> Excess emissions are defined as any three-hour period during which the average emissions (arithmetic average of three contiguous one –hour periods) of SO_2 as measured by the continuous monitoring system exceed the applicable standard. <u>NOx Standard per 40 CFR 60.45(g)(3)(i)</u>

Emission Unit	Note(s)
	Excess emissions are defined as any three-hour period during which the average emissions (arithmetic average of three contiguous one-hour periods) of NOx as measured by a CEMS exceed the applicable standard in 40 CFR 60.44. NOx Standard per Georgia Rule 391-3-1-.02(2)(d)4. Excess emissions are defined as any three-hour period during which the average emissions (arithmetic average of three contiguous one –hour periods) of NOx as measured by the continuous monitoring system exceed the applicable standard.

Condition 6.1.7.a specifies excess emissions that need to be reported.

Condition 6.1.7.b.i. Contains Distillate fuel oil sulfur content exceedance definition for Boilers A, B, C and D.

Condition 6.1.7.b.ii pertains to any fuel other than natural gas being fired in Boiler E (U163).

Condition 6.1.7.b.iii pertains to exceedance of the single and total HAP emission limits in the permit.

Condition 6.1.7.b.iv pertains to reporting of average 30-day rolling average oxygen concentration as measured by the oxygen analyzer system is less than the minimum oxygen concentration established during the most recent CO performance stack test for D Boiler (U161).

Condition 6.1.7.b.v. requires reporting of any instance in which the Permittee combusts coal with an annual average mercury content (in lb/MMBtu, as determined per 40 CFR 63.11211) which is equal to or greater than the 2.2E-05 lb mercury per MMBtu of heat input.

Condition 6.1.7.b.vi requires reporting of any failure to conduct the biennial performance tune-up required by Condition 5.2.6.

Condition 6.1.7.c.i requires reporting of the baghouse pressure drop excursion.

B. Specific Record Keeping and Reporting Requirements:

Verification of Compliance with the Facility-Wide HAP Emission Limits: Existing Conditions 6.2.1 through 6.2.3 require the Permittee to maintain calculations and emission records for facility-wide HAP emissions. The D Boiler (U161) is the primary source of individual and total HAPs emitted at the facility. The Division has updated the method of verifying compliance with the following:

- Imperial currently bases actual HCl emissions from the D Boiler (U161) on the following:
    - A Division approved tested HCl reduction factor from burning coal (existing condition number 4.2.2).

- A 12-month rolling average coal chlorine content level (on a weighted average basis) based on coal chlorine content in coal supplier certifications for each delivery of coal. Imperial must obtain coal supplier certifications which specify the coal chlorine content for each shipment of coal. The Title V Renewal Permit does not impose the existing requirement to use a "12-month rolling average coal chlorine content" and leaves that to Imperial to propose in the calculation protocol.

- Require the calculation of monthly individual and total HAP emissions on a facility-wide basis.

- Require the calculation of individual and total HAP emissions on a facility-wide basis for each rolling twelve months.

Condition 6.2.4 requires the Permittee to obtain coal supplier certifications which specify the coal chlorine content.

NSPS D Recordkeeping Requirements: There are no additional recordkeeping requirements other than those specified in Section 5 of this renewal Permit. Existing Condition 6.2.5 lists the requirements for NSPS D records and reporting is carried over to the renewal Permit.

NSR Reasonable Possibility – Recordkeeping for the D Boiler (U161) Re-Tubing Project: Existing Condition No. 6.2.6 is carried over to the Title V Renewal with the additional language clarifying the date upon which the condition is no longer valid (Condition 6.2.7). This condition satisfies the requirements of Georgia Rule 391-3-1-.02(7)(b)15(i)(I).

NSR Reasonable Possibility – Recordkeeping for the Distillate Fuel Oil Project: Existing Condition Nos. 6.2.8 and 6.2.9 are carried over to the Title V Renewal Permit.

NSPS Dc Recordkeeping (Condition 6.2.10): The Permittee is required to maintain monthly fuel usage records for the E Boiler (U163). E Boiler: Fuel firing records are required to be kept, in this case, for the E Boiler (U163) based on NSPS Dc. Depending on the fuel to be fired, there are up to three possible ways that the NSPS allows for tracking fuel usage. Imperial satisfies the fuel usage tracking requirement by recording and maintaining the amount of natural gas combusted during each calendar month, per 40 CFR 60.48c(g)(2).

PSD Avoidance Recordkeeping (Condition 6.2.11): Section 3 of the Permit requires the Permittee to only burn distillate fuel oil that contains less than 0.5 weight percent sulfur for PSD Avoidance purposes.

BGACT Recordkeeping (Condition 6.2.12): The requirements of 40 CFR 63.11223(b) and 40 CFR 63.11225(c) are carried over to this Title V Renewal Permit.

Reporting Requirements:

- Existing Condition No. 6.2.7 requires Submission of the specified information as part of the reports required by Condition No. 6.1.4. This report will help the Division monitor compliance with the Title V Permit.

- Existing Condition No. 6.2.12 specifies the reporting requirements for HCl emission reduction from the D Boiler (U161).

- Existing conditions implement the reporting requirements of NSR Reasonable Possibility per Georgia Rule 391-3-1-.02(7)(b)15.(i)(V). These reporting requirements are carried over to the Title V Renewal Permit. Language clarifying the last report required for the D Boiler (U161) re-tubing project is added.

Section 6.2 Conditions

Conditions 6.2.1 through 6.2.3 are the Recordkeeping and Reporting requirements for the facility-wide individual and total HAP emissions.

Condition 6.2.4 includes the need for the Permittee to keep coal supplier certifications which specify the coal chlorine content.

Condition 6.2.5 has the NSPS Subpart D requirements for the D Boiler.

Condition 6.2.6 pertains to the NSR Reasonable Possibility for Re-Tubing Project for the D Boiler.

Condition 6.2.7 is the NSR Reasonable Possibility for Re-Tubing Project for the D Boiler with a expiration date.

Condition 6.2.8 is the NSR Reasonable Possibility for the distillate Fuel Oil as per state rule 391-3-1-.02(2)(7)(b)15(i)(I).

Condition 6.2.9 has the NSR Reasonable Possibility for the distillate fuel oil project record keeping requirements.

Condition 6.2.10 has the NSPS Subpart Dc requirements for the E Boiler.

Condition 6.2.11 includes the updated language for fuel oil supplier certifications.

Condition 6.2.12.a through c has the requirements of 40 CFR 63.11223(b)(6)(i). through (iii).

Condition 6.2.12.d has the Record keeping requirement per 40 CFR 63.11225(c)(1).

Conditions 6.2.12.e.i and e.ii. have the Record keeping requirement per 40 CFR 63.11225(c)(2)(i) and (ii).

Condition 6.2.12.f has the requirement of 40 CFR 63.11223(c)(3).

Conditions 6.2.12.g and .h have the Record keeping requirement per 40 CFR 63.11225(c)(4) and (c)5.

Condition 6.2.12.i has the requirement of 40 CFR 63.11223(c)(6).

Condition 6.2.12.j has the requirement of 40 CFR 63.11225(d).

Condition 6.2.12.k has the biennial tune-up recordkeeping requirements.

Condition 6.2.13 is quarterly reporting requirements for the boilers.

Condition 6.2.14 is the NSR Reasonable Possibility for Re-Tubing Project for the D Boiler with an expiration date.

Condition 6.2.15 has the NSR Reasonable Possibility for the distillate Fuel Oil Project-reporting requirements.

Condition 6.2.16.a has the Reporting requirements per 40 CFR 63.11225(a)(1).

Condition 6.2.16.b has the Reporting requirements per 40 CFR 63.11235.

Condition 6.2.16.c has the Reporting requirements per 40 CFR 63.11225(b).

Condition 6.2.17 is the Reporting requirements per 40 CFR 63.11223(b)(6) and 40 CFR 63.11225(g).

Condition 6.2.18 includes the reporting requirements of each instance in which each emission limit and operating limit, in Tables 1 and 3 to 40 CFR 63 Subpart JJJJJJ that applies, is not met and must be reported as deviations per 40 CFR 63.11225.

VII. Specific Requirements

A. Operational Flexibility

Not applicable.

B. Alternative Requirements

Not applicable.

C. Insignificant Activities

See Permit Application on GEOS website.
See Attachment B of the permit

D. Temporary Sources

Not applicable.

E. Short-Term Activities

Not applicable.

F. Compliance Schedule/Progress Reports

Not applicable.

G. Emissions Trading

Not applicable.

H. Acid Rain Requirements

Not applicable.

I. Stratospheric Ozone Protection Requirements

Not applicable.

J. Pollution Prevention

Not applicable.

K. Specific Conditions

Not applicable.

VIII. General Provisions

Generic provisions have been included in this permit to address the requirements in 40 CFR Part 70 that apply to all Title V sources, and the requirements in Chapter 391-3-1 of the Georgia Rules for Air Quality Control that apply to all stationary sources of air pollution.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.

//If comments were received, state the commenter, the date the comments were received in the above paragraph. All explanations of any changes should be addressed below.//